

REMARKS

The claims have been amended to incorporate the subject matter from claims 1 and 2 into the claims which originally depended therefrom. No new matter is added and the amendments are supported by the claims as filed.

The paragraph regarding federally sponsored research or development has been removed from the application because it is not applicable.

It is believed the present submission does not require the payment of any fees. If this is incorrect, however, please charge any fee due, including the fee for any extensions of time required, to Deposit Account No. 07-1969.

Respectfully submitted,



Susan K. Doughty
Reg. No. 43,595

GREENLEE, WINNER AND SULLIVAN, P.C.
5370 Manhattan Circle, Suite 201
Boulder, CO 80303
Telephone: (303) 499-8080
Facsimile: (303) 499-8089
E-mail: winner@greenwin.com

Attorney docket No. 89-00
Ila: November 4, 2002

USSN: 10/039,771

Version with markings to show changes made

3. (Once amended) A method for selectively removing carbon monoxide from a gas containing hydrogen comprising:

contacting said gas with a catalyst composition with the formula:

$nN/Ce_{1-(x+y+z)}A_xA'_yA''_zO_{2-\delta}$

where A, A', A'' are independently selected from the group consisting of: Zr, Gd, La, Sc, Sr, Co, Cr, Fe, Mn, V, Ti, Cu and Ni; N is one or more members of the group consisting of: Pt, Pd, and Au;

n is a weight percent between 0 and 25;

x, y and z are independently 0 to 0.9;

x + y + z is 0.1 to 0.9; and

δ is a number which renders the composition charge neutral [of claim 1] whereby the carbon monoxide in said gas is selectively removed.

4. (Once amended) A method for selectively removing carbon monoxide from a gas containing hydrogen comprising:

contacting said gas with a catalyst composition with the formula $nN/(MO_x)_y(CeO_{2-\delta})_{1-y}$, where

M is one or more members of the group selected from: Zr, Co, Cr, Fe, Mn, V, Ti, Ni and Cu;

N is one or more members of the group selected from: Pt, Pd, and Au;

n is a weight percent between 0 and 25;

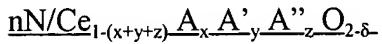
y is 0.1 to 0.9;

and x and δ make the compositions charge neutral [of claim 2] whereby the carbon monoxide in said gas is selectively removed.

5. (Once amended) A reactor for selectively removing carbon monoxide from a gas which comprises:

a casing having an entrance port, an exit port and a passage therebetween for the movement of said gases from said entrance port to said exit port; and

a catalyst composition with the formula:



where A, A', A'' are independently selected from the group consisting of: Zr, Gd, La, Sc, Sr, Co, Cr, Fe, Mn, V, Ti, Cu and Ni; N is one or more members of the group consisting of: Pt, Pd, and Au;

n is a weight percent between 0 and 25;

x, y and z are independently 0 to 0.9;

x + y + z is 0.1 to 0.9; and

δ is a number which renders the composition charge neutral [of claim 1] in said passage.

6. (Once amended) A reactor for selectively removing carbon monoxide from a gas which comprises:

a casing having an entrance port, an exit port and a passage therebetween for the movement of said gases from said entrance port to said exit port; and

a catalyst composition with the formula: $nN/(MO_x)_y(CeO_{2-\delta})_{1-y}$, where

M is one or more members of the group selected from: Zr, Co, Cr, Fe, Mn, V, Ti, Ni and Cu;

N is one or more members of the group selected from: Pt, Pd, and Au;

n is a weight percent between 0 and 25;

y is 0.1 to 0.9;

and x and δ make the compositions charge neutral [of claim 2] in said passage.

14. (Once amended) A [The] catalyst composition for selectively removing carbon monoxide from a gas containing hydrogen with the formula:



where A, A', A'' are independently selected from the group consisting of: Zr, Gd, La, Sc, Sr, Co, Cr, Fe, Mn, V, Ti, Cu and Ni; N is one or more members of the group consisting of: Pt, Pd, and Au;

n is a weight percent between 0 and 25;

x, y and z are independently 0 to 0.9;

x + y + z is 0.1 to 0.9; and

δ is a number which renders the composition charge neutral [of claim 1], wherein said catalyst composition contains one or more members of the group consisting of: copper, manganese and gold.

15. (Once amended) A [The] catalyst composition for selectively removing carbon monoxide from a gas containing hydrogen with the formula $nN/(MO_x)_y(CeO_{2-\delta})_{1-y}$, where M is one or more members of the group selected from: Zr, Co, Cr, Fe, Mn, V, Ti, Ni and Cu; N is one or more members of the group selected from: Pt, Pd, and Au; n is a weight percent between 0 and 25; y is 0.1 to 0.9; and x and δ make the compositions charge neutral[of claim 2], wherein said catalyst composition contains one or more members of the group consisting of: copper, manganese and gold.
16. (Once amended) The catalyst composition of claim [1] 14 having the formula $Ce_{0.5}Cu_{0.5}O_w$, where w is a number that renders the composition change neutral.
17. (Once amended) The catalyst composition of claim [1] 14 having the formula $Ce_{0.475}Zr_{0.05}Mn_{0.475}O_w$, where w is a number that renders the composition change neutral.
18. (Once amended) The catalyst composition of claim [1] 14 having the formula $Ce_{0.5}Mn_{0.5}O_w$, where w is a number that renders the composition change neutral.

19. (Once amended) The catalyst composition of claim [1] 14 having the formula $Ce_{0.45}Zr_{0.05}Mn_{0.45}Cu_{0.05}O_w$, where w is a number that renders the composition change neutral.
20. (Once amended) The catalyst composition of claim [1] 14 having the formula $Ce_{0.5}Fe_{0.1}Cu_{0.4}O_w$, where w is a number that renders the composition change neutral.
21. (Once amended) The catalyst composition of claim [1] 14 having the formula $Mn_{0.5}Fe_{0.5}O_w$, where w is a number that renders the composition change neutral.
22. (Once amended) The catalyst composition of claim [1]14 having the formula $Ce_{0.1}Mn_{0.45}Cu_{0.45}O_w$, where w is a number that renders the composition change neutral.
23. (Once amended) The catalyst composition of claim [1] 14 having the formula $Ce_{0.1}Mn_{0.45}Fe_{0.55}O_w$, where w is a number that renders the composition change neutral.
24. (Once amended) The catalyst composition of claim [1] 14 having the formula $Ce_{0.3}Mn_{0.7}O_w$, where w is a number that renders the composition change neutral.
25. (Once amended) The catalyst composition of claim [1] 14 having the formula $Ce_{0.3}Mn_{0.65}Zr_{0.05}O_w$, where w is a number that renders the composition change neutral.